**Unit Five: Pregnancy and Delivery**

**Unit Objectives:**

1. To identify the stages of fetal development from conception through pregnancy and birth.

2. To explain how a pregnant female transfers nutrients and other substances to her fetus.

3. To examine choices that can hurt or help the developing fetus

during pregnancy.

4. To understand traditional and non-traditional birthing methods

5. To examine alternative methods for pregnancy, including artificial insemination and in vitro fertilization

6. To discuss complications associated with pregnancy and delivery

**Assessment:** This unit will be assessed with a quiz on 11/21.

**Extra Credit Assignment:**

1. Do’s and Don’ts of Pregnancy (Replaces a zero for a homework OR ten bonus points on unit packet grade.) Located on the wiki: [www.ghshealth.wikispaces.com](http://www.ghshealth.wikispaces.com): Due by 11/21
2. Empathy Belly Activity: Wear the empathy belly for one full day. (Bonus points on quarter average): Must have permission slip signed by parents: Obtain from Ms. Drury (can do any time in 2nd quarter)

**Unit Five Syllabus: Pregnancy & Delivery**

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| **Day** | **Lesson Objectives** | **Assignments** |
| **11/14** | Male/Female Reproductive  Anatomy Quiz  Project Work Time | Complete Vocab Assignment and  Reading in Unit 5 Packet  Pgs. 2-5 |
| **11/15** | Fertilization---Implantation  Months of Pregnancy  Vaginal vs. Cesarean Delivery Activity | Finish Web Activity (pgs. 6&7)  Read: Man With Twin Inside Him  and Answer Article Questions!  Pgs. 8-9 |
| **11/16 & 11/17** | Article Discussion  Vaginal vs. Cesarean Delivery  Discussion  Film: Life’s Greatest Miracle |  |
| **11/18** | Pregnancy Alternatives  Artificial Insemination & In Vitro  Fertilization | Study for Quiz: Monday 11/21  Finish Sperm Project: 11/22 |
| **11/21** | QUIZ: Pregnancy Unit  Project Work Time/Finish Up |  |
| **11/22** | Sperm Project Share Day |  |
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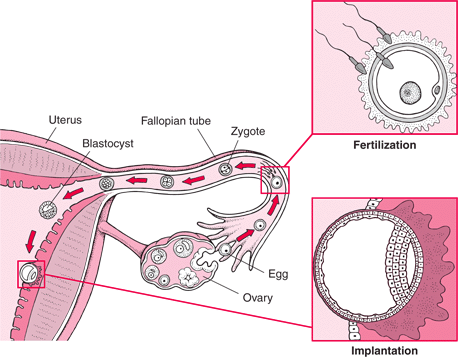
**The Beginning of the Life Cycle**

Did you know that you began as ONE single cell that was smaller than the dot at the end of a sentence, and are now made up of TRILLIONS of cells?

**Conception and Implantation**

The entire complex human body begins as one microscopic cell that is formed by the union of an egg cell from a female, and a sperm cell from a male. The union of a sperm cell and egg cell is called **fertilization,** which is also referred to as conception. The egg and sperm will usually meet in the fallopian tube. The resulting cell is called a **zygote. This cell contains the genetic code or blueprint for a new human being!**

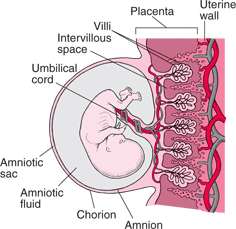
Within one day of forming, the zygote will begin to divide and travel down the fallopian tube. Once it becomes about 100 cells it is then referred to as a **blastocyst** and will generally reach the uterus within seven days. At this point it is about the size of the head of a pin. The attachment of the blastocyst to the uterine wall is called **implantation.** Once the blastocyst has attached to the endometrial wall of the uterus it is then referred to as an embryo, it continues to be called an **embryo** until the 8th week of pregnancy. After the 8th week, the developing group of cells is called a **fetus,** and it referred to as this for the remainder of the pregnancy.



**Embryonic Growth and the First Trimester**

The blastocyst has several layers of cells, and once it implants in the endometrial wall the inner cells will develop into the embryo, and the outer cells will develop into the placenta. The **placenta** is a thick, blood-rich tissue that lines the walls of the uterus during pregnancy and nourishes the embryo. The placenta allows oxygen and nutrients to travel from the mother to the fetus and waste materials to travel from the fetus to the mother. Although the blood of the mother and fetus will not mix in the uterus, harmful substances consumed by the mother can pass through the placenta to the fetus.

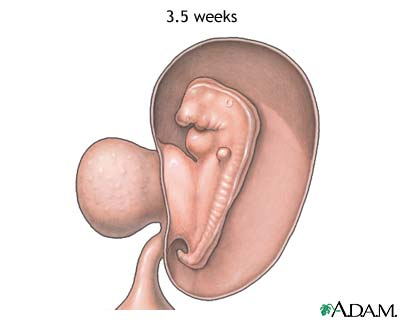
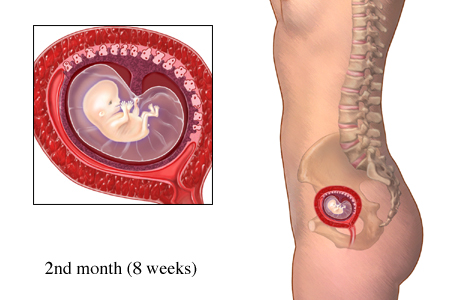
The placenta releases a hormone called **human chorionic gonadotropin**, or **HCG,** which will stop the ovaries from releasing more eggs and helps with the continued development of tissue to support the embryo. HCG can be detected in a woman’s urine with a **pregnancy test** about 2 weeks after fertilization of the egg and is said to be about 95% accurate at that time. A blood test would be able to detect it sooner than that. Some of the cells from the placenta will develop into a membrane called the **amniotic sac**, which is a thin fluid-filled sac that surrounds and protects the developing embryo. The **umbilical cord** is a rope-like structure that connects the embryo to the mother’s placenta.



The embryo will develop from the head down and from the center out. The organs will begin to form about 3 weeks after fertilization, when the brain and spinal cord both begin to form. The heart and major blood vessels will begin to develop by about week 4, and the heart will start beating by the 5th week of development. At 6 weeks the embryo has a “tail” which will become the tip of the spine. By the 8th week the embryo is about 1 ¼ inches long and all organs have begun to develop.

By the end of the first trimester (week 12) the fetus is about 3.5 inches long and the arm and leg buds have started to develop.

During the first trimester of pregnancy the mother will often experience morning sickness. Eighty percent of women will experience mild to moderate symptoms of nausea and vomiting. The symptoms usually begin 4 weeks after fertilization occurs and should end by the 12th week. Men can also experience some of the same symptoms of pregnancy as their partners. It is sometimes called “sympathy pains,” but is more technically called **couvade syndrome.**

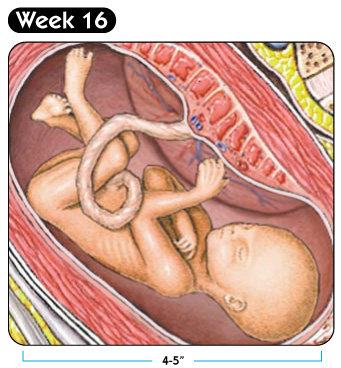
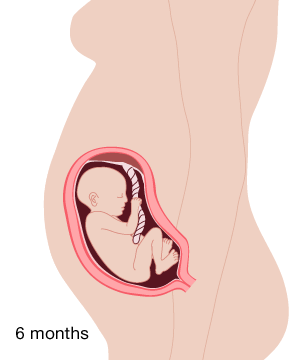
 

**Second Trimester**

During the 4th month of pregnancy the mother will begin to feel the movements of the fetus. It is at this time that the sex can be identified on an ultrasound scan. The baby begins to urinate on a regular basis but does NOT have bowel movements. The mother’s breasts will start to swell and may leak **colostrum,** a thick sticky liquid that is produced before mild starts to flow, it is usually called “pre-milk.”

At the 5th month the fetus has a very strong heart beat, and in the 6th month the fetus can open its eyes, suck its thumb and respond to light. It is during this month that the baby will begin to practice breathing by swallowing amniotic fluid. At the end of this trimester the fetus is about 1 foot long and weighs about 1 pound.

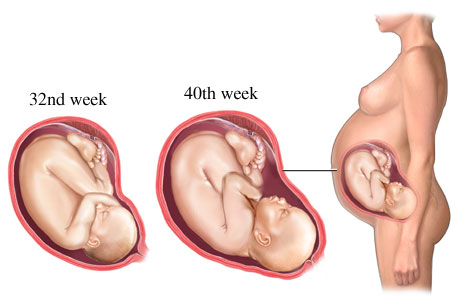
The 6th month is generally referred to as the earliest time the fetus could potentially survive on its own outside the mother.

**Third Trimester**

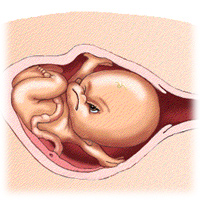
By the end of the 7th month of pregnancy the fetus is about 15 inches long and weighs about 1 ½ lbs. It is during this last trimester that the most weight gain will occur. Fat will begin depositing under the skin of the fetus and it will gain nearly ½ pound each week. The bones are fully developed but are still rather soft. By the end of the third trimester the fetus will on average weigh about 7 pounds and will be about 20 inches long. The fetus should have now positioned itself so its head is facing down toward the vagina…ready to be born!

When the fetus is born it is often covered in a waxy bluish substance called **vernix.** The **vernix** serves as a protective device for the newborn’s skin while it was living in a fluid environment.



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| --- | --- |
| **Vocabulary Term** | **Definition** |
| **Fertilization** |  |
| **Zygote** |  |
| **Implantation** |  |
| **Embryo** |  |
| **Fetus** |  |
| **Placenta** |  |
| **Human Chorionic**  **Gonadotropin** |  |
| **Amniotic Sac** |  |
| **Umbilical Cord** |  |
| **Couvade Syndrome** |  |
| **Colostrum** |  |
| **Vernix** |  |

**What Next…**

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**VAGINAL DELIVERY**

Go to: http://adam.about.com/encyclopedia/Vaginal-birth-series.htm

**Click on the #’s (beginning with #1) to move through the process of vaginal delivery.**

**Slide 1:** What is the normal position of the baby in a vaginal delivery?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Slide 2:** What is the **mucus plug**?

What is associated with the rupture of the amniotic sac and when does it generally rupture?

**Slide 3:** What is an **epidural?**

**Slide 4:** What is a **contraction?**

**Slide 5:** What do contractions help do to the cervix?

When is a woman considered “fully dilated?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Slide 6:** What are “**fontanels?”** AND why are they helpful with delivery?

**Slide 7 and Slide 8: No questions**

**Slide 9:** What is the “**afterbirth?”**

**CESEARAN DELIVERY:** Go to: http://adam.about.com/surgery/C-section-series.htm

**Click on the #’s (beginning with #1) to move through the process of vaginal delivery.**

**Slide #1: No questions**

**Slide #2:** What is happening with each situation listed below, making a C-section necessary?

**A. Transverse Position:**

**B. Breech Presentation:**

**C. Placenta Abruptio:**

**D. Placenta Previa:**

**Slide #3:** What is the difference between **regional** and **general anesthesia** and WHEN would each be used?

Regional:

General:

**Slide #4:** What are the two different cuts that can be made with a C-section?

**Slide #5:** No Questions

**Slide #6:** The surgeon will then cut through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

to allow the amniotic fluid to escape.

**Slide #7 and #8: No Questions**

**Slide #9:** What is a typical hospital stay after a C-section?

# Man With Twin Living Inside Him -- A Medical Mystery Classic

## Another Person Lived Inside a Man for Nearly Four Decades

Aug. 23, 2006

Sanju Bhagat's stomach was once so swollen he looked nine months pregnant and could barely breathe. A baby has been living inside a man for 36 years; it's a medical mystery. Living in the city of Nagpur, India, Bhagat said he'd felt self-conscious his whole life about his big belly. But one night in June 1999, his problem erupted into something much larger than cosmetic worry. An ambulance rushed the 36-year-old farmer to the hospital. Doctors thought he might have a giant tumor, so they decided to operate and remove the source of the bulge in his belly. "Basically, the tumor was so big that it was pressing on his diaphragm and that's why he was very breathless," said Dr. Ajay Mehta of Tata Memorial Hospital in Mumbai. "Because of the sheer size of the tumor, it makes it difficult [to operate]. We anticipated a lot of problems." Mehta said that he can usually spot a tumor just after he begins an operation. But while operating on Bhagat, Mehta saw something he had never encountered. As he cut deeper into Bhagat's stomach, gallons of fluid spilled out -- and then something extraordinary happened. "To my surprise and horror, I could shake hands with somebody inside," he said. "It was a bit shocking for me."

#### Removing the Mutated Body

One doctor recalled that day in the operating room. "He just put his hand inside and he said there are a lot of bones inside," she said. "First, one limb came out, then another limb came out. Then some part of genitalia, then some part of hair, some limbs, jaws, hair."

Inside Bhagat's stomach was a strange, half-formed creature that had feet and hands that were very developed. Its fingernails were quite long.

"We were horrified. We were confused and amazed," Mehta said.

#### A Mutated Body Within a Body

At first glance, it may look as if Bhagat had given birth. Actually, Mehta had removed the mutated body of Bhagat's twin brother from his stomach. Bhagat, they discovered, had one of the world's most bizarre medical conditions -- fetus in fetu. It is an extremely rare abnormality that occurs when a fetus gets trapped inside its twin. The trapped fetus can survive as a parasite even past birth by forming an umbilical cordlike structure that leaches its twin's blood supply until it grows so large that it starts to harm the host, at which point doctors usually intervene.

According to Mehta, there are fewer than 90 cases of fetus in fetu recorded in medical literature. Fetus in fetu happens very early in a twin pregnancy, when one fetus wraps around and envelops the other. The dominant fetus grows, while the fetus that would have been its twin lives on throughout the pregnancy, feeding off its host twin like a kind of parasite. Usually, both twins die before birth from the strain of sharing a placenta.



(ABC News)

Sometimes, however, as in Bhagat's case, the host twin survives and is delivered. What makes his case so unusual is that no one suspected Bhagat had a twin inside him for 36 years. Bhagat said he was very much relieved after his operation. He was not interested in knowing what Mehta did to him or seeing what he had removed from his abdomen. "He didn't want to see it because it was looking very ghastly," Mehta said.

**Avoiding the Gory Details**

There was no placenta inside Bhagat -- the enveloped parasitic twin had connected directly to Bhagat's blood supply. Right after the surgery, Bhagat's pain and inability to breathe disappeared and he recovered immediately. The case may have been a medical miracle to doctors, but to Bhagat his condition had been a source of shame and misery. All his life, people in the village where he lived had mercilessly teased him and told him he looked pregnant. Ironically, they were right in a way. Today Bhagat is in good health and leads a normal life, but he still gets teased occasionally. "They still ridicule him. What they say is, you went for an operation and you had the baby," Mehta said.

**Questions:**

1. What problems prompted Sanju to go to the hospital?
2. What tissue structures were found inside Sanju Bhagat?
3. What condition was he suffering from?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What happens when a person has this condition and how does it survive?
5. How many cases of this condition have occurred around the world?
6. For how many years did he live with this condition?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. What are your thoughts about this amazing, but rare, condition?

**Pregnancy Alternatives**

**ARTIFICIAL INSEMINATION**

Reasons a person/couple may consider artificial insemination?

a. d.

b. e.

c.

**IN VITRO FERTILIZATION**

What is **In vitro fertilization (IVF)?**

**Five Steps of IVF:**

**Step One: Stimulation:**

**Step Two: Egg Retrieval:**

**Step Three: Insemination and Fertilization:**

**Step Four: Embryo Culture:**

**Step Five: Embryo Transfer:**

